

## CLAIMS

1 1. A computer-implemented method of messaging in a computer network,  
2 the computer network comprising a plurality of at least two computer-based  
3 participant systems communicating through asynchronous exchange of  
4 messages, a first one of the participant systems maintaining one or more data  
5 objects, the first participant system arranged to send messages to at least one  
6 other participant system to notify said other participant system of modifications  
7 of said one or more data object entered through the first participant system, the  
8 method comprising the steps of:

9       providing a status object in relation to each data object, the status object  
10 comprising one or more status fields for storing information representative of at  
11 least one of a delta value applied to the respective data object as a result of one  
12 or more modifications and a total value of that data object after application of  
13 the one or more modifications;

14       providing a modification status flag in relation to each data object;  
15       providing a communication status flag in relation to each data object;  
16       each time a modification of a respective data object is entered, updating  
17 the respective status object so as to reflect the modification, and checking the  
18 respective modification status flag;

19       if it is determined that the modification status flag indicates a first  
20 modification status, setting the modification status flag to a second modification  
21 status;

22       in response to setting the modification status flag to the second  
23 modification status, checking the respective communication status flag;

24       if it is determined that the communication status flag indicates a first  
25 communication status, retrieving the respective status object and sending a  
26 notification message containing the retrieved status object from the first  
27 participant system to the other participant system;

28       upon sending of the notification message, setting the respective  
29 communication status flag to a second communication status and resetting the  
30 respective modification status flag to the first modification status; and

31           upon receipt of a confirmation message from the other participant system  
32 by the first participant system, resetting the respective communication status  
33 flag to the first communication status, the confirmation message confirming  
34 receipt of the notification message by the other participant system.

1    2.     The method of claim 1, wherein the step of checking the respective  
2 communication status flag includes the step of:  
3           if it is determined that the communication status flag indicates the second  
4 communication status, repeating checking the communication status flag until it  
5 is determined that the communication status flag indicates the first  
6 communication status.

1    3.     The method of claims 1 or 2, further comprising the step of presenting on  
2 a display of a graphical output device a first display item in relation to every data  
3 object of which the modification status flag indicates the second modification  
4 status.

1    4.     The method of claim 3, further comprising the step of presenting on the  
2 display of the graphical output device a respective second display item in  
3 relation to at least one first display item, the second display item indicating part  
4 or all of the information contained in the status object of the corresponding data  
5 object.

1    5.     A computer-implemented system for messaging in a computer network,  
2 the system comprising a first computer adapted to run one or more software  
3 program applications in accordance with inputs, the first computer provided with  
4 a computer program product providing computer-executable program code that,  
5 when loaded into the computer, causes the first computer to:  
6           provide a status object in relation to each of one or more data objects  
7 maintained by said one or more software program applications, the status  
8 object comprising one or more status fields for storing information  
9 representative of at least one of a delta value applied to the respective data  
10 object as a result of one or more modifications entered by said user and a total  
11 value of that data object after application of the one or more modifications;

12 provide a modification status flag in relation to each data object;  
13 provide a communication status flag in relation to each data object;  
14 each time a modification of a respective data object is entered, update  
15 the respective status object so as to reflect the modification, and check the  
16 respective modification status flag;  
17 if it is determined that the modification status flag indicates a first  
18 modification status, set the modification status flag to a second modification  
19 status;  
20 in response to setting the modification status flag to the second  
21 modification status, check the respective communication status flag;  
22 if it is determined that the communication status flag indicates a first  
23 communication status, retrieve the respective status object and send a  
24 notification message containing the retrieved status object to at least one  
25 second computer;  
26 upon sending of the notification message, set the respective  
27 communication status flag to a second communication status and reset the  
28 respective modification status flag to the first modification status; and  
29 upon receipt of a confirmation message from the second computer, reset  
30 the respective communication status flag to the first communication status, the  
31 confirmation message confirming receipt of the notification message by the  
32 second computer.

1 6. The system of claim 5, wherein the computer program product further  
2 causes the first computer to repeat checking the respective communication  
3 status flag if it is determined that the communication status flag indicates the  
4 second communication status, until it is determined that the communication  
5 status flag indicates the first communication status.

1 7. The system of claims 5 or 6, wherein the computer program product  
2 further causes the first computer to present on a display of a graphical output  
3 device a first display item in relation to every data object of which the  
4 modification status flag indicates the second modification status.

1 8. The system of claim 7, wherein the computer program product further  
2 causes the first computer to present on the display of the graphical output  
3 device a respective second display item in relation to at least one first display  
4 item, the second display item indicating part or all of the information contained  
5 in the status object of the corresponding data object.

1 9. A computer program product providing computer-executable instructions  
2 that, when executed by a computer, cause the computer to:

3 provide a status object in relation to each of one or more data objects  
4 maintained by one or more software program applications running on the  
5 computer, the status object comprising one or more status fields for storing  
6 information representative of at least one of a delta value applied to the  
7 respective data object as a result of one or more modifications entered by a  
8 user of the computer and a total value of that data object after application of the  
9 one or more modifications;

10 provide a modification status flag in relation to each data object;

11 provide a communication status flag in relation to each data object;

12 each time a modification of a respective data object is entered, update  
13 the respective status object so as to reflect the modification, and check the  
14 respective modification status flag;

15 if it is determined that the modification status flag indicates a first  
16 modification status, set the modification status flag to a second modification  
17 status;

18 in response to setting the modification status flag to the second  
19 modification status, check the respective communication status flag;

20 if it is determined that the communication status flag indicates a first  
21 communication status, retrieve the respective status object and send a  
22 notification message containing the retrieved status object to at least one other  
23 computer;

24 upon sending of the notification message, set the respective  
25 communication status flag to a second communication status and reset the  
26 respective modification status flag to the first modification status; and

27 upon receipt of a confirmation message from the other computer, reset

- 26 -

28 the respective communication status flag to the first communication status, the  
29 confirmation message confirming receipt of the notification message by the  
30 other computer.